

LIVER-X®

Rumen Protected Choline:

Much recent work has centred on rumen protected choline and the benefits to metabolism.

Choline is a phospholipid precursor that promotes the synthesis of very low-density lipoproteins plus the metabolism and elimination of triglycerides from the liver. Hepatic fatty acid metabolism and cow performance are responsive to increasing the supply of choline during the periparturient period.

Generally, when cattle are supplemented with choline, the trend is improvement in at least one production measurement (milk yield, fat or protein percent or yield, total solids).

The difference in field production results could be a result of whether individual rations were balanced for methionine. Balancing dairy rations for amino acids is a very new and not yet widely applied practice.

Methionine is a precursor in conversion of non-esterified fatty acids into more easily assimilated very low-density lipoproteins but also is converted to choline.

Choline and methionine metabolism are interactive processes; as much as 28% of absorbed methionine has been shown to be involved in choline synthesis. With choline supplementation, methionine could be incorporated into other processes, specifically production of parameters such as milk or milk protein synthesis.

Sorbitol supplies readily available energy and increases the mobilisation and transport of lipids at the hepatic level and also stimulates duodenal digestion.

Niacine limits mobilisation of adipose tissue and stimulates the rumen flora for more efficient rumenal digestion and promotion of gluconeogenesis by production of propionic acid.

Cobalt is a Vitamin B₁₂ precursor so promotes the synthesis of methionine.

In short, the constituents of Liver-X work together to stimulate the expulsion of triglycerides from the liver as very low-density lipoproteins.

Liver-X is the nutritional answer to what is a nutritional problem.

Dose Rate:

| | |
|------------------------|------------------------------|
| Adult Cattle: | 100 grams per day for 4 days |
| Calves: | 20 grams per day for 4 days |
| Sheep & | |
| Adult Goats: | 20 grams per day for 4 days |
| Lambs and Kids: | 4 grams per day for 4 days |

This product is exempt from registration being an oral nutritional compound compliant with Schedule 4 of the ACVM regulations 2001.

